Simple Analysis Report

1. Introduction

This analysis focuses on understanding **customer shopping behavior** by examining historical purchase data. The goal is to identify **spending patterns, customer preferences, and key factors influencing purchases** to support data-driven business decisions.

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2. Objective of the Analysis

The main objectives of this analysis are:

- To study customer purchasing patterns
- To identify high-spending customers
- To analyse product category performance
- To understand the impact of demographics on shopping behavior
- To generate actionable business insights

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3. Dataset Overview

The dataset contains customer shopping records with information such as:

- Customer demographics (Age, Gender)
- Product categories
- Purchase amount
- Payment methods
- Shopping frequency / transaction details

The data represents realistic retail transactions and is suitable for exploratory analysis.

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4. Tools & Techniques Used

- **Python**: Data cleaning, analysis, and visualization
- **Libraries**: Pandas, NumPy, Matplotlib, Seaborn
- **SQL**: Aggregation and query-based insights
- **Jupyter Notebook**: Analysis execution
- **PDF Report**: Summary of findings

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5. Data Analysis Approach

The analysis was carried out in the following steps:

1. **Data Understanding**
   - Reviewed dataset structure and variables
   - Checked data types and distributions
2. **Data Cleaning**
   - Handled missing or inconsistent values
   - Prepared clean data for analysis
3. **Exploratory Data Analysis (EDA)**
   - Analyzed spending distribution
   - Studied category-wise sales
   - Examined customer demographics
   - Visualized key trends and patterns

4. **SQL Analysis**
    o Identified total and average spending
    o Found high-value customers
    o Analyzed category-wise revenue
    o Extracted insights using SQL queries

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6. Key Findings
- Certain product categories contribute more significantly to total revenue
- Frequent customers tend to spend more on average
- Customer demographics influence purchasing behavior
- Digital payment methods are commonly preferred
- Spending behavior varies across different customer segments

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7. Business Insights
- Businesses can focus marketing efforts on **high-performing product categories**
- Targeting **repeat customers** can increase revenue
- Personalized offers can be designed based on **customer demographics**
- Promoting digital payment options can enhance customer convenience

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8. Conclusion
This project demonstrates how **Python and SQL** can be used together to analyze customer shopping data and extract meaningful insights. The analysis helps in understanding customer behavior and supports better **business and marketing decisions**.